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## Abstract

The present invention relates to a transmission apparatus for transmitting OFDM-signals comprising modulation means 4 for modulating said signals onto a plurality of subcarriers using a OFDM-modulation method, transformation means 5 for transforming said modulated signals into the time domain, and transmission means for transmitting said signals, whereby in said modulation means every M-th subcarrier is modulated, wherein M is an integer and  $M \geq 2$ . The present invention also relates to a corresponding transmission method for transmitting OFDM-signals.

15 The present invention further relates to a receiving apparatus for receiving OFDM-signals comprising M identical or respectively mirrored wave forms within one OFDM-timeburst, wherein M is an integer and  $M \geq 2$ , comprising receiving means for receiving said OFDM-signals, correlation means 22 for correlating said wave forms to obtain time synchronization, transformation means 23 for transforming said signals into the frequency domain and demodulation means 24 for demodulating said signals. The present invention also relates to a corresponding receiving method for receiving OFDM-signals. The present invention provides a much better time and frequency synchronisation performance based on correlation techniques than conventional OFDM-systems.

25 (fig. 3)